

1.0 Traffic and Transportation

1.1 Introduction

This Technical Memorandum describes the traffic and transportation network in the Proposed Action's Region of Influence (ROI) and potential traffic and transportation impacts that could result from the Proposed Action (i.e., Preferred Alternative) and No Action Alternative. Measures to reduce potential adverse traffic and transportation effects from the Proposed Action are identified.

This analysis includes single-occupant-vehicles (SOVs), trucks, and parking; pedestrian and bicycle networks; and public transit. For further details on Treasury's detailed traffic analysis for the Proposed Action, please refer to the [Transportation Impact Study](#) (BEP, 2020).

Treasury received comments related to potential traffic and transportation impacts from stakeholders during the public scoping period. Comments primarily concerned the potential increase in traffic congestion, the sufficiency of local road infrastructure to support increased commuter and truck traffic, the general lack of public transit access to the Project Site, and potential safety concerns (e.g., speeding, commuters taking shortcuts through neighborhoods).

Please refer to Treasury's [Public Scoping Report](#) for further details on the comments received during the scoping period. Concerns expressed during public scoping regarding traffic and transportation are considered and addressed in this analysis.

1.1.1 Level of Service

As most construction workers and proposed Currency Production Facility (CPF) employees would commute to the Project Site by SOV, this Technical Memorandum focuses heavily on vehicular traffic on existing roadways. Treasury analyzes traffic by projecting changes in traffic at intersections, as these are where multiple traffic flows converge. Intersections are categorized as either signalized (e.g., controlled by a stop light) or unsignalized (e.g., controlled by a stop sign or yield sign).

Level of Service (LOS) is the primary measure of traffic operations for signalized and unsignalized intersections. LOS is a performance measure, ranging from A (the best) to F (the worst), that quantifies driver perception for elements such as travel time, number of stops, total amount of stopped delay, and impediments caused by other vehicles.

Local planning authorities establish LOS analysis methods required in their jurisdiction, which can vary depending on whether an intersection is signalized or unsignalized. Local planning authorities relevant to the local ROI (see **Section 1.2.1**) include the Maryland State Highway Administration (SHA), Prince George's County, and the Maryland-National Capital Park and Planning Commission (M-NCPPC).

Two primary methods guide LOS analysis for signalized intersections in the ROI:

- The [Highway Capacity Manual \(HCM\) \(6th Edition\)](#)¹ method, required by Maryland SHA and Prince George's County, measures the average time, in seconds, that a vehicle is delayed because of a traffic control device (e.g., a traffic signal), including deceleration, stopped, and acceleration time. This is the vehicle "control delay," a standard representation of driver discomfort and frustration, fuel consumption, and increased travel time.

¹ Treasury used the [HCM 2000 manual](#) to analyze Intersections 4 and 6 (see **Section 1.2.3**) in the ROI due to their specific characteristics (BEP, 2020).

- The **Critical Lane Volume (CLV) method**, required by the M-NCPPC, measures conflicted vehicle movements (e.g., left turns through heavy opposing traffic) along two perpendicular approaches. Volumes are adjusted to reflect the number of lanes serving each vehicle move.

LOS for unsignalized intersections in the ROI is guided by the HCM method only. The LOS thresholds for unsignalized intersections are lower than for signalized intersections to account for differences in driver perceptions, as signalized intersections are generally designed to carry higher traffic volumes and experience greater delays than unsignalized intersections.

Table 1 defines LOSs A through F for signalized and unsignalized intersections in terms of average control delay (i.e., from the HCM method) and, if applicable, the CLV method.

Table 1: Signalized and Unsignalized Intersection LOS Thresholds Applicable to Proposed Action

LOS	Signalized Intersections				Unsignalized Intersections	
	HCM Method		CLV Method		HCM Method	
	Average Control Delay (seconds/vehicle)	Pass/Fail	CLVs (# of vehicles)	Pass/Fail	Average Control Delay (seconds/vehicle)	Pass/Fail
A	≤10	Pass	≤1,000	Pass	≤10	Pass
B	>10 - 20	Pass	>1,000 - 1,150	Pass	>10 - 15	Pass
C	>20 - 35	Pass	>1,150 - 1,300	Pass	>15 - 25	Pass
D	>35 - 55	Pass	>1,300 - 1,450	Fail	>25 - 35	Pass
E	>55 - 80	Fail	>1,450 - 1,600	Fail	>35 - 50	Fail
F	>80	Fail	>1,600	Fail	>50	Fail

Sources: (M-NCPPC, 2010; M-NCPPC, 2012a; M-NCPPC, 2012b).

1.1.2 Queue Lengths

The Maryland SHA further characterizes traffic conditions using an Intersection Queuing Analysis method, which measures vehicle queue lengths in intersection approaches (i.e., northbound [NB], southbound [SB], westbound [WB], and eastbound [EB] lanes, as applicable). Queue length values indicate whether an intersection’s “storage” provides enough space for stopped vehicles (i.e., waiting to pass through an intersection) without those vehicles blocking another lane or intersection. Queue length values vary based on the available storage in an intersection. A failing queue length occurs when an intersection’s storage capacity is exceeded.

1.1.3 Peak Hour

To establish traffic conditions under the worst-case scenario, traffic analyses consider “peak hour” measurements, or traffic counts from the daily time period(s) when traffic is most congested; peak hour is often known as “rush hour.” Peak hours typically correspond with the influx of commuters onto roadways during the regular workweek (i.e., Monday through Friday) who travel to and from work before and after regular working hours (i.e., 9:00 a.m. to 5:00 p.m.). Accordingly, there is often an AM peak hour in the morning and a PM peak hour in the afternoon. Peak hours can vary by region, season, and other factors. In addition to vehicular traffic, peak hour is also used to refer to peak daily ridership on public transit.

65 1.2 Affected Environment

66 1.2.1 Region of Influence

67 The ROI for this analysis includes the roadways, pedestrian and bicycle networks, and public transit
68 facilities in the National Capital Region (NCR) that are relevant to the Proposed Action. This ROI considers
69 the regional transportation network as well the local transportation network in the vicinity of the Project Site.

70 The *regional ROI* includes major regional roadways in the NCR that would be used by construction workers
71 and employees commuting to and from the proposed CPF (see **Figure 1**): Capital Beltway (Interstate [I]-
72 495), I-95, Baltimore Avenue (US Route 1), and Baltimore-Washington Parkway (Maryland Route [MD]-
73 295).

74 Treasury also identified a *local ROI* for traffic and transportation, which includes the transportation elements
75 near the Project Site that have the greatest potential to be affected by the Proposed Action.

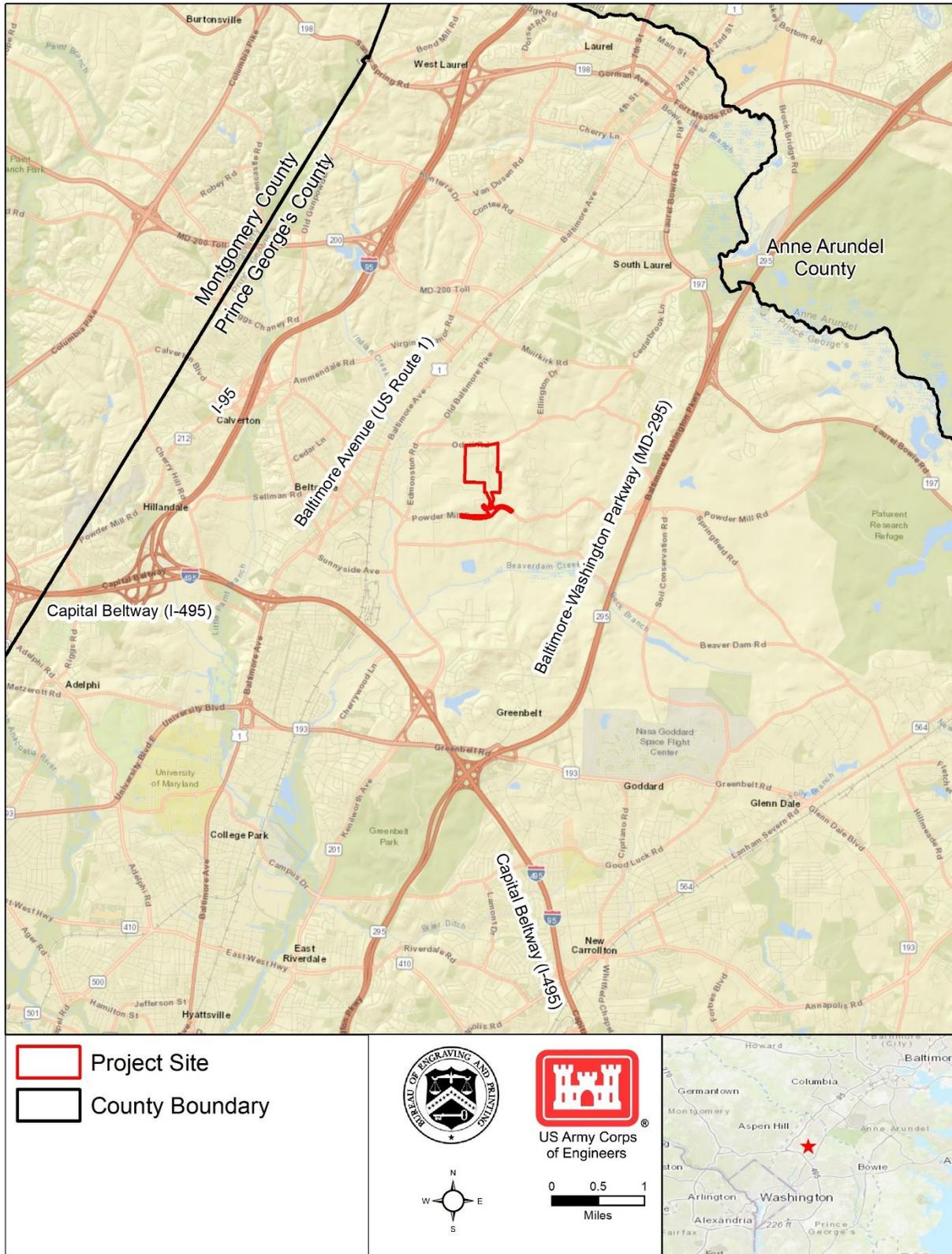
76 Specifically, in consultation with the M-NCPPC, the City of Greenbelt, Maryland SHA, the US Army Corps
77 of Engineers (USACE) Baltimore District, the National Capital Planning Commission (NCPC), and the
78 National Park Service (NPS), Treasury identified 15 intersections to study between the Project Site and the
79 regional highway network or last major decision point before entering a freeway facility; these intersections
80 are also along roadways that would reasonably be anticipated to carry a substantial portion of proposed
81 CPF employee vehicle traffic during Proposed Action operation (see **Section 1.3.1**). These intersections
82 are bounded by Edmonston Road/Kenilworth Avenue (MD-201) to the west, Capital Beltway to the south,
83 Soil Conservation Road to the east, and Odell Road to the north. The 15 studied intersections and their
84 associated roadways generally encompass the *local ROI*, as shown in **Figure 2** (BEP, 2020).

85 In addition to roadways, the *local ROI* includes the immediate vicinity of the Project Site that could be used
86 by bicycle and pedestrian commuters. For this analysis, pedestrian transportation elements are considered
87 within 0.25 mile of the Project Site, which represents a typical walking distance between the Project Site
88 and nearest bus stop. Bicycle transportation elements are considered within 1 mile of the Project Site, which
89 represents a typical distance that a cyclist would be willing to travel to reach the Project Site (BEP, 2020).

90 Finally, the *local ROI* includes the nearest public transit options in the vicinity of the Project Site, such as a
91 Metrorail station and local Metrobus routes.

92 1.2.2 Applicable Guidance

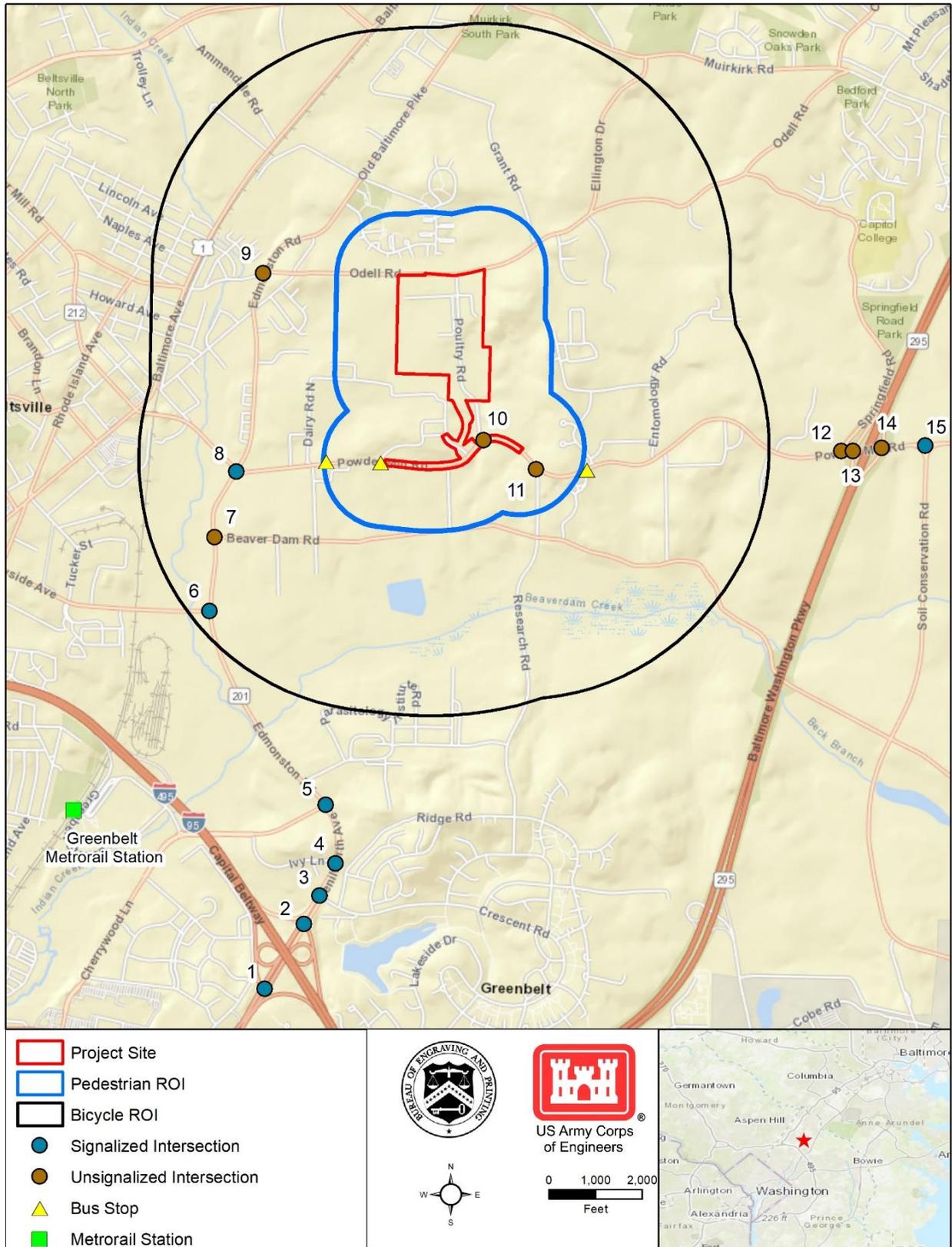
93 **Table 2** identifies federal, state, and local regulations and guidance applicable to this analysis, with which
94 Treasury would comply during implementation of the Proposed Action as appropriate.



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Figure 1: Regional ROI for Traffic and Transportation



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Figure 2: Local ROI for Traffic and Transportation, Including Studied Intersections

Table 2: Traffic and Transportation Applicable Regulations and Guidance

Guidance/Regulation	Description/Applicability to Proposed Action
<u>Maryland SHA Regulations (Code of Maryland Regulations [COMAR] 11.04)</u>	Provides regulations and guidelines for highway use and access, such as permits and conditions for oversized or overweight vehicles that travel on highways and highway access routes for local delivery trucks.
<u>Maryland SHA Traffic Signal Timing Guidelines (Maryland SHA, 2011)</u>	Provides guidelines and recommendations for new or existing SHA-maintained traffic signals on state roadways.
<u>Maryland SHA Draft Guidelines for Traffic Impact Reports/Studies (Maryland SHA, 2019a)</u>	Provides guidelines for reviewing the impacts of a proposed development on the state highway system and evaluating improvements needed to support the proposed development's access to the state highway system.
<u>Prince George's County Transportation Review Guidelines for the Analysis of the Traffic Impact of Development Proposals (M-NCPPC, 2012b)</u>	Establishes traffic impact assessment criteria for proposed developments in Prince George's County, including guidelines for presenting information to the Prince George's County Planning Board and how to include a mitigation plan.
<u>Transportation Research Board (TRB) HCM (TRB, 2016)</u>	Establishes the methodology to use when conducting traffic analyses; methods in the HCM are required by Maryland SHA and Prince George's County.
<u>NCPC Comprehensive Plan for the National Capital, Federal Elements (NCPC, 2016)</u>	Addresses matters related to federal properties and interests in the NCR. The goal of the transportation Federal Element is to develop and maintain a multi-modal regional transportation system that meets the travel needs of workers, residents, and visitors, while improving regional mobility, accessibility, air quality, and environmental quality through expanded transportation alternatives and transit-oriented development.
Regional and Local Plans	Greenbelt Pedestrian and Bicyclist Master Plan (City of Greenbelt, 2014) Local and regional plans outline ongoing projects and future development in the ROI. These plans emphasize mobility, transit-oriented development, and a strong transportation network that provides safe, convenient, and equitable multimodal access to jobs and services. Relevant plans include the 2040 Maryland Transportation Plan (MDOT, 2019a), 2040 Maryland Bicycle and Pedestrian Master Plan (MDOT, 2019b), Baltimore-Washington Parkway Traffic Safety Plan (NPS, 2015), Subregion 1 Master Plan and Sectional Map Amendment (M-NCPPC, 2010), Countywide Master Plan of Transportation (M-NCPPC, 2009a), Countywide Master Plan of Transportation: Bikeways and Trails (M-NCPPC, 2009b), Plan 2035 Prince George's Approved General Plan (M-NCPPC, 2014), and Greenbelt Sector Plan and Sectional Map Amendment (M-NCPPC, 2013).
<u>Treasury's Transportation Jurisdictional Agreement (2019)</u>	Treasury's agreement with Maryland SHA, M-NCPPC, Prince George's County, NPS, and the City of Greenbelt on the tools, data parameters, and assumptions used in the Transportation Impact Study for the Proposed Action (BEP, 2020).

100 1.2.3 Existing Conditions

101 1.2.3.1 BEP Employee Home Locations

102 Treasury surveyed existing Washington, DC Facility (DC Facility) employees in September 2019 regarding
103 their home locations and commutes with SOVs. Of the 698 survey respondents, approximately 34 percent
104 (the largest concentration) reside south of the Project Site, approximately 28 percent reside west of the
105 Project Site, approximately 16 percent reside east of the Project Site, and approximately 14 percent reside
106 north of the Project Site (BEP, 2020).²

107 1.2.3.2 Vehicles (SOVs and Trucks)³

108 Roadways

109 **Table 3** describes the existing roads within the regional and local ROIs that are applicable to the Proposed
110 Action, including the roadway classifications, speed limits in miles per hour (mph), and Maryland SHA
111 Annual Average Daily Traffic (AADT) values (i.e., average daily traffic counts) at locations near the Project
112 Site.

113 Peak Hour

114 As described in **Section 1.1.3**, peak hours correspond with commuters traveling before and after regular
115 working hours during the regular workweek. Treasury analyzed existing AM and PM peak hour periods in
116 the local ROI by collecting turning movement counts at each of the 15 studied intersections (see **Figure 2**)
117 and installing Automatic Traffic Recorders⁴ (ATR) to capture traffic volumes along primary roadways in the
118 local ROI throughout the day. This data revealed that traffic in the local ROI generally flowed unobstructed
119 for most of the AM and PM peak hour periods. Overall, Treasury and local planning authorities determined
120 that the AM and PM peak hours in the local ROI are 7:45 to 8:45 a.m. and 5:00 to 6:00 p.m.

121 As most employees at the proposed CPF would work the day shift⁵ from 6:30 a.m. to 3:00 p.m., Treasury
122 anticipates employees to travel primarily between the hours from 6:00 to 7:00 a.m. and 3:00 to 4:00 p.m.
123 As such, Treasury focused its analysis of existing and projected future traffic conditions in the local ROI
124 only during these *primary commuting hours*, which do not overlap with the observed AM and PM peak hours
125 in the local ROI.

126 Level of Service

127 Treasury, with approval from local planning authorities, used traffic analysis software⁶, calibrated for the
128 HCM method, and CLV formulas to analyze the existing LOS of the 15 intersections in the local ROI during
129 Treasury's proposed primary commuting hours (see **Table 4**). In accordance with the HCM method,
130 Treasury then calculated an overall LOS for each signalized intersection, while the LOS for each
131 unsignalized intersection is represented by the worst lane group delay for the minor approach (i.e., the less-
132 trafficked road in the intersection). This Technical Memorandum summarizes the LOSs for each intersection
133 using the above metrics; specific data for each approach of the intersections is available in the
134 [Transportation Impact Study](#).

² The remaining 8 percent of DC Facility staff did not answer as they would be dependent on public transit.

³ Treasury's LOS and queue length analyses include both SOVs and trucks.

⁴ ATR data provides a daily log of traffic, highlighting multiple peak periods and capturing the change in traffic levels throughout the day.

⁵ Work hours may be altered, as needed, to meet production demands.

⁶ Synchro™ Traffic Signal Coordination Software Version 10.3.

135 Based on the LOS results, 7 of the 15 intersections currently operate at an acceptable LOS (i.e., a passing
 136 LOS) during Treasury’s proposed primary commuting hours of CPF employees. Two signalized
 137 intersections and six unsignalized intersections currently operate at failing LOSs (see **Figure 3**).

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Table 3: ROI Roadway Descriptions

Roadway	Functional Roadway Classification	Number of Lanes	2018 AADT near Project Site	Speed Limit (mph)	Description
Regional ROI					
Capital Beltway (I-495)	Interstate	4 – 8 lanes in each direction	212,070	55	Forms a circle around Washington, DC; major regional commuter route in the NCR
I-95	Interstate	4 – 8 lanes in each direction	215,020	55	Southwest-northeast road that connects, in part, the states of Maryland and Virginia; connects to the Capital Beltway
Baltimore Avenue (US Route 1)	Principal Arterial	2 – 3 lanes in each direction with periodic shared center turn lane	41,040	40	Southwest-northeast road that generally parallels I-95; provides connectivity to Powder Mill Road and Sunnyside Avenue
Baltimore-Washington Parkway (MD-295)	Principal Arterial	2 – 3 lanes in each direction	11,960	55	Southwest-northeast road that connects Washington, DC and Prince George’s County to the City of Baltimore, Maryland; also provides connectivity to Powder Mill Road and Greenbelt Road
Local ROI					
Greenbelt Road (MD-193)	Principal Arterial	3 lanes in each direction with periodic left turn lanes	49,420 at Kenilworth Avenue; 55,323 at Baltimore-Washington Parkway	40	East-west road providing connectivity to Baltimore Avenue, Kenilworth Avenue, and Baltimore-Washington Parkway
Edmonston Road / Kenilworth Avenue (MD-201)	Minor Arterial north of I-495; Principal Arterial south of I-495	2 – 4 lanes in each direction; 1 lane in each direction north of Sunnyside Avenue	16,860 at Powder Mill Road; 54,290 at Greenbelt Road	40	Southwest-northeast road providing connectivity to the Capital Beltway and Greenbelt Road
Powder Mill Road (MD-212)	Minor Arterial	1 lane in each direction with left-right turn lanes at intersections	11,960	35	East-west road providing connectivity to Edmonston Road, Baltimore-Washington Parkway, and Soil Conservation Road

Roadway	Functional Roadway Classification	Number of Lanes	2018 AADT near Project Site	Speed Limit (mph)	Description
Cherrywood Lane	Major Collector	1 – 2 lanes in each direction with periodic shared center turn lane	8,801	30 – 35	Southwest-northeast road providing connectivity to Greenbelt Road, Edmonston Road, and several secondary residential roadways; periodic bicycle lanes on both sides
Sunnyside Avenue	Major Collector	2 lanes in each direction with periodic left turn lanes; 1 lane in each direction at Edmonston Road	8,930	30	East-west road connecting Baltimore Avenue to Edmonston Road; periodic sidewalks on both sides
Crescent Road	Major Collector	1 lane in each direction	5,751	30	East-west road that connects to Kenilworth Avenue; periodic bicycle lanes on both sides
Ivy Lane	Local Road	1 lane in each direction with shared center turn lane	No data	30	Curvilinear road connecting Cherrywood Lane to Edmonston Road; periodic bicycle lanes on both sides
Beaver Dam Road	Local Road	1 lane in each direction	No data	30	Curvilinear road connecting Edmonston Road to Soil Conservation Road
Odell Road	Local Road	1 lane in each direction	No data	35	Curvilinear road connecting Edmonston Road to Muirkirk Road and Springfield Road
Soil Conservation Road	Local Road	1 lane in each direction	No data	40	North-south road connecting Powder Mill Road to Greenbelt Road
Research Road and Poultry Road	Local Road	1 unstriped lane in each direction	No data	No data	Local roads primarily serving the Beltsville Agricultural Research Center (BARC) facility; Research Road sometimes used as a cut-through road between Greenbelt Road and Powder Mill Road

139 Sources: (BEP, 2020; Maryland SHA, 2019b)

140 Functional roadway classification groups public streets and highways into classes according to the character of service

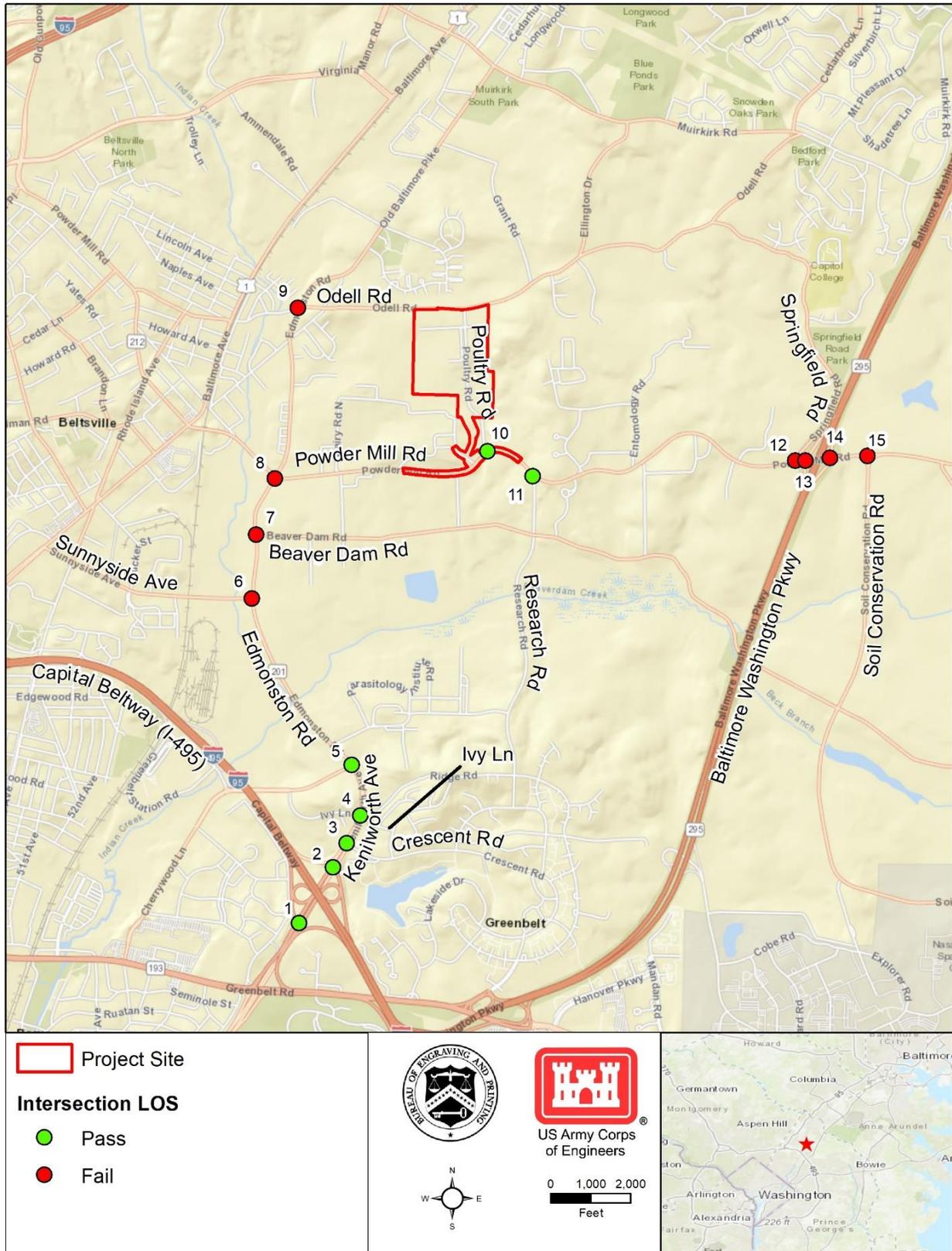
141 they are intended to provide, as defined [here](#) (M-NCPPC, 2009a).

Table 4: LOS at the 15 Intersections in the Local ROI under Existing Conditions

ID	Intersection Name	Signalized / Unsignalized	AM Peak Hour				PM Peak Hour				Pass / Fail
			HCM		CLV		HCM		CLV		
			LOS	Average Control Delay (seconds/vehicle)	LOS	CLV (# of vehicles)	LOS	Average Control Delay (seconds/vehicle)	LOS	CLV (# of vehicles)	
1	Kenilworth Avenue and Capital Beltway SB Off-Ramp	Signalized	A	4.1	A	468	A	4.3	A	644	Pass
2	Kenilworth Avenue and Capital Beltway NB Off-Ramp	Signalized	C	23.5	A	714	B	19.4	A	739	Pass
3	Kenilworth Avenue and Crescent Road	Signalized	C	23.7	A	539	C	24.6	A	632	Pass
4	Kenilworth Avenue and Ivy Lane	Signalized	A	2.6	A	548	A	1.8	A	654	Pass
5	Kenilworth Avenue/Edmonston Road and Cherrywood Lane	Signalized	A	8.5	A	681	B	10.7	A	761	Pass
6	Edmonston Road and Sunnyside Avenue	Signalized	E	58.2	C	1298	D	42.0	C	1250	Fail
7	Edmonston Road and Beaver Dam Road	Unsignalized	F	133.7	N/A	N/A	F	121.4	N/A	N/A	Fail
8	Edmonston Road and Powder Mill Road	Signalized	D	38.4	A	851	E	74.2	B	1010	Fail
9	Edmonston Road and Odell Road	Unsignalized	E	37.7	N/A	N/A	E	35.4	N/A	N/A	Fail

ID	Intersection Name	Signalized / Unsignalized	AM Peak Hour				PM Peak Hour				Pass / Fail
			HCM		CLV		HCM		CLV		
			LOS	Average Control Delay (seconds/vehicle)	LOS	CLV (# of vehicles)	LOS	Average Control Delay (seconds/vehicle)	LOS	CLV (# of vehicles)	
10	Powder Mill Road and Poultry Road	Unsignalized	A	9.5	N/A	N/A	C	23.3	N/A	N/A	Pass
11	Powder Mill Road and Research Road	Unsignalized	B	12.6	N/A	N/A	C	18.8	N/A	N/A	Pass
12	Powder Mill Road and Springfield Road	Unsignalized	C	19.2	N/A	N/A	F	71.0	N/A	N/A	Fail
13	Powder Mill Road and Baltimore-Washington Parkway SB Ramps	Unsignalized	F	83.9	N/A	N/A	F	405.2	N/A	N/A	Fail
14	Powder Mill Road and Baltimore-Washington Parkway NB Ramps	Unsignalized	D	33.7	N/A	N/A	F	240.6	N/A	N/A	Fail
15	Powder Mill Road and Soil Conservation Road	Signalized	C	27.9	A	567	F	96.0	A	888	Fail

143 Source: (BEP, 2020)



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Figure 3: LOS at the 15 Studied Intersections in the Local ROI under Existing Conditions

146 Queue Lengths

147 Treasury used additional traffic analysis software⁷ to analyze the existing queue lengths during the
 148 proposed primary commuting hours of CPF employees at the 15 studied intersections in the local ROI (see
 149 **Table 5**). Treasury assumed that the 95th percentile queue length, or a queue length that has a 5 percent
 150 possibility or more of being exceeded, is an unacceptable, or failing, queue length. Five of the 15 studied
 151 intersections currently experience failing queue lengths in at least one approach; the remainder of the
 152 intersections have acceptable queue lengths in all approaches. All five of these failing intersections also
 153 have a failing LOS (BEP, 2020).

154 **Table 5: Studied Intersections in Local ROI with Failing Queue Lengths under Existing Conditions**

ID	Intersection Name	Approach with Failing Queue Length	AM / PM
6	Edmonston Road and Sunnyside Avenue	Edmonston Road NB	AM
		Edmonston Road SB	PM
8	Edmonston Road and Powder Mill Road	Powder Mill Road EB	PM
		Powder Mill Road WB	AM
			PM
13	Powder Mill Road and Baltimore-Washington Parkway SB Ramps	Baltimore-Washington Parkway SB Off-Ramp	AM
			PM
14	Powder Mill Road and Baltimore-Washington Parkway NB Ramps	Baltimore-Washington Parkway NB Off-Ramp	AM
			PM
15	Powder Mill Road and Soil Conservation Road	Soil Conservation Road NB	PM

155 Parking

156 Parking near the Project Site is primarily limited to BARC parking lots for service vehicles and employees.
 157 Approximately 20 paved surface parking lots are located at nearby BARC office buildings and maintenance
 158 facilities to the south of the Project Site; none of these paved surface parking lots are on the Project Site
 159 (BEP, 2020). One small, gravel parking area is in the northern portion of the Project Site. There is no on-
 160 street parking in the local ROI.

161 1.2.3.3 Pedestrian and Bicycle Network

162 Pedestrian Network

163 Few sidewalks are present within 0.25 mile of the Project Site. The internal circulation in BARC is primarily
 164 vehicular with some sidewalks, but generally with few accommodations for non-motorized transportation.
 165 Outside of BARC, sidewalks exist along the residential streets in the neighborhoods north of the Project
 166 Site (e.g., Vansville), although these are not contiguous with the Project Site. There are no marked
 167 pedestrian road-crossing locations along Powder Mill Road or Odell Road within 0.25 mile of the Project
 168 Site. This mode of transportation is retained for analysis because it would be necessary in conjunction with
 169 public transit.

⁷ SimTraffic™ Version 10.3.

170 **Bicycle Network**

171 There are no multi-use paths or roadways with bicycle accommodations within 1 mile of the Project Site.
 172 Within the local ROI, Powder Mill Road has a 3-foot to 6-foot striped shoulder⁸ between Edmonston Road
 173 and the Baltimore-Washington Parkway that provides space for, and is commonly used by, bicyclists.

174 **1.2.3.4 Public Transit**

175 Several modes of public transit are proximal to the Project Site, including Metrobuses, Metrorail, shuttles,
 176 and ride-hailing and carsharing services, as described below.

177 **Metrorail Station**

178 Washington Metropolitan Area Transit Authority’s (WMATA) Greenbelt Metrorail Station is located
 179 approximately 4 miles (via roadways) from the Project Site in the City of Greenbelt. On weekdays, trains
 180 typically operate between 5:00 a.m. and 10:59 p.m.⁹ at intervals of 12 minutes or less. A parking lot is
 181 available at this station. On average, approximately 71 riders exit this station during the AM primary
 182 commuting hour and 145 riders enter this station from during the PM primary commuting hour.

183 On a regional level, WMATA stations typically experience their AM peak hour at 8:00 a.m. and their PM
 184 peak hour at 5:00 p.m. (WMATA, 2019; WMATA, 2020a); these times do not overlap with the primary
 185 commuting hours of the proposed CPF employees. Further, the Greenbelt Metrorail Station is used primarily
 186 heading towards Washington, DC in the morning and returning from Washington, DC in the afternoon (i.e.,
 187 over 1,000 riders per peak hour), which are reverse directions of proposed CPF employees (WMATA,
 188 2020b).

189 **Metrobus Service**

190 Two WMATA Metrobus lines travel via routes along Edmonston Road, Powder Mill Road, and the Baltimore-
 191 Washington Parkway, as described in **Table 6**; however, only the 87 Route currently has bus stops within
 192 the local ROI (see **Figure 2**); the nearest bus stops to the Project Site are approximately 0.5 mile east and
 193 west of Intersection 10. There is currently no intercity or commuter bus service to the Project Site.

194 **Table 6: Metrobus Routes Potentially Servicing the Project Site**

Metrobus Route	Destinations	Headway (Weekdays)	Service Hours (Weekdays)	Average Capacity Used	Nearest Bus Stop to Project Site
87	Greenbelt Metrorail Station to City of Laurel	30 minutes weekdays	Northbound: 5:50 a.m. – 7:47 p.m. Southbound: 4:46 a.m. – 7:45 p.m. Does not operate 9:00 a.m. – 3:00 p.m.	60% (AM) 72% (PM)	0.5 mile east and west of Poultry Road
B30	Greenbelt Metrorail Station to Baltimore-Washington International Thurgood Marshall Airport	30 minutes weekdays	Northbound: 6:00 a.m. – 9:54 p.m. Southbound: 7:00 a.m. – 10:45 p.m.	33% (AM) 68% (PM)	N/A

195 Sources: (WMATA, 2015; WMATA, 2019; WMATA, 2018)

⁸ Federal Highway Administration guidelines state bicycle striped lanes should be 5 feet wide (FHWA, 2015).

⁹ Metrorail service is extended on Friday evenings.

196 **BARC Shuttle**

197 The US Department of Agriculture (USDA) provides one commuter shuttle between BARC and the
198 Greenbelt Metrorail Station. The shuttle operates on weekdays between 6:42 a.m. and 6:08 p.m. The
199 shuttle's commute between the station and BARC is typically 10 to 12 minutes.

200 **Ride-hailing and Carsharing¹⁰**

201 Several ride-hailing and carsharing companies currently serve the regional and local ROIs, such as Uber,
202 Lyft, Zipcar, Turo, and several taxi companies. Ride-hailing and carsharing services are provided by private
203 companies that offer automobile access to registered users. Although exact user numbers are unavailable,
204 these services are widely available in the regional and local ROIs. The Proposed Action would have no
205 noticeable effect on these services regionally or locally. As such, they are not analyzed further in this
206 Technical Memorandum.

207 **1.3 Environmental Effects**

208 This section identifies the potential effects on traffic and transportation within the regional and local ROIs
209 that could occur under the Proposed Action (i.e., Preferred Alternative) and the No Action Alternative.
210 Measures to reduce potential adverse impacts on traffic and transportation are also identified.

211 **1.3.1 Approach to Analysis**

212 To evaluate the impacts of the Alternatives on the local ROI's traffic levels and transportation network,
213 Treasury modeled potential future traffic operations at the 15 studied intersections of the local ROI (see
214 **Section 1.3.1**). Treasury assumed that a significant impact would occur if the Proposed Action would:

- 215 • Cause a noticeable change in the regional ROI's traffic levels and transportation operations.
- 216 • Result in LOS degradation for signalized or unsignalized intersections such that:
 - 217 • Signalized – LOS would be considered failing.
 - 218 • Unsignalized – LOS would be failing, and minor approaches with volumes of at least 100
219 vehicles per hour would have CLVs of 1,150 or more (M-NCPPC, 2012b).
- 220 • Result in failing queue lengths that increase by 150 feet or more compared to the No Action
221 Alternative in intersections that also have a failing LOS.
- 222 • Create a parking shortage due to elimination of needed parking capacity without sufficient
223 replacements.
- 224 • Result in long-term closure or loss of sidewalks, trails, lanes, or other facilities used by pedestrians
225 or cyclists to access frequently visited locations.
- 226 • Interrupt an existing public transit route over the long-term without a convenient replacement.
- 227 • Cause an abrupt, unplanned change in existing transit ridership levels that would require the transit
228 authority to alter existing operations.

229 Treasury modeled traffic in the local ROI for the year 2029 under baseline (i.e., No Action Alternative) and
230 Proposed Action (i.e., Preferred Alternative) conditions. Treasury analyzed the year 2029 because that is
231 when the proposed CPF would be fully operational.

¹⁰ Ride-hailing allows users to call a driver for a one-time trip to a destination. Carsharing allows users to rent a vehicle for short periods of time (i.e., hours or days) for personal use.

232 *No Action Alternative*

233 The 2029 baseline conditions for traffic and transportation are those that would occur in the year 2029
234 without implementation of the Proposed Action (i.e., under the No Action Alternative).

235 These projected future conditions account for planned or reasonably foreseeable regional development
236 projects in the ROI (see the [Cumulative Effects Technical Memorandum](#)) as well as general anticipated
237 growth in the region. Treasury identified planned and reasonably foreseeable regional development projects
238 in consultation with local planning agencies during initial scoping and calculated an average annual
239 background growth rate of 1.2 percent based on six years (i.e., 2013 to 2019) of Maryland SHA traffic counts
240 on roads in the local ROI (Maryland SHA, 2019b).

241 Treasury estimated LOS and queue lengths under the No Action Alternative in the same manner as for the
242 existing conditions analysis (see **Section 1.2.3.2**), incorporating projected 2029 traffic volumes into the
243 respective traffic analysis software programs.

244 *Preferred Alternative*

245 Based on technical and regulatory resources, Treasury made the following conservative (i.e., “worst case”)
246 assumptions when evaluating the Preferred Alternative’s potential impact on traffic and transportation in the
247 ROIs (BEP, 2020):

248 Construction

- 249 • Construction workers would commute to the construction site during regular daytime hours Monday
250 through Friday. Construction workers would commute from local home locations (i.e., generally
251 within 10 miles of the Project Site).
- 252 • Construction would require 7,278 dump truck trips. Dump trucks would travel locally (i.e., no more
253 than 10 miles away) to pick-up and dispose of materials and equipment.

254 Operation

- 255 • Of the 1,427 employees of the proposed CPF, 1,138 would work during the day shift (i.e., 6:30 a.m.
256 to 3:00 p.m.). The remainder would be almost equally dispersed over the evening and midnight
257 shifts.
- 258 • Of day shift employees, 88 percent (1,003 employees) would drive an SOV to the proposed CPF,
259 2 percent (23 employees) would carpool with two to three persons in a vehicle (i.e., 8 carpool
260 vehicles), 9 percent (100 employees) would use public transit, 1 percent (11 employees) would
261 bike, and no employees would walk.
- 262 • Approximately 944 and 946 employees would commute during the proposed CPF’s AM and PM
263 primary commuting hours, respectively. Accounting for use of public transit and bicycles, 850 and
264 851 vehicle trips would be generated during the AM and PM primary commuting hours, respectively.
- 265 • Approximately 135 and 130 staff would commute to the proposed CPF during the local ROI’s AM
266 and PM peak hours (i.e., 7:45 to 8:45 a.m. and 5:00 to 6:00 p.m.), respectively.
- 267 • Approximately 82 trucks (i.e., 27 box trucks and 55 semi-trucks) would arrive at and depart from
268 the proposed CPF weekly for shipments and deliveries.
- 269 • The Proposed Action includes construction of a new entrance road that would provide access to
270 the CPF from Powder Mill Road. The proposed entrance road would intersect Powder Mill Road
271 near the existing intersection of Powder Mill Road and Animal Husbandry Road; this intersection,
272 as well as proximal portions of Powder Mill Road, would be reconfigured (e.g., to include a traffic

273 control device, new or wider lanes, etc.) according to the projected traffic and queue requirements
274 for this location during operation of the Proposed Action. Poultry Road would no longer provide
275 access to Treasury's proposed parcel.

276 • The proposed CPF would include two Entry Control Facilities (ECFs), one for passenger vehicles
277 and one for trucks, on the proposed entrance road extending from Powder Mill Road. ECFs would
278 be security checkpoints for vehicles that wish to access the proposed CPF. Each accessing vehicle
279 would be required to stop at an ECF and be screened by Bureau of Engraving and Printing (BEP)
280 security personnel before proceeding.

281 • The proposed CPF would include sufficient parking spaces (i.e., approximately 1,179 spaces) to
282 fully accommodate proposed CPF employee and visitor vehicles on-site at any one time.

283 Using the home zip codes of the existing DC Facility employees, Treasury projected the routes that
284 employees would likely use to commute to the proposed CPF and distributed the anticipated vehicle trips
285 (e.g., 850 and 851 trips during the AM and PM primary commuting hours, respectively) accordingly. The
286 projected routes include major regional roadways (e.g., the Capital Beltway or the Baltimore-Washington
287 Parkway) and local roadways and accounted for alternate routes suggested by current employees.

288 Treasury estimated LOS and queue lengths at the 15 studied intersections under the Preferred Alternative
289 in the same manner as for the existing conditions and the No Action Alternative (see **Section 1.2.3.2**),
290 accounting for projected traffic volumes for both the 2029 baseline (No Action) and Preferred Alternative.

291 Finally, Treasury used TransModeler™ Traffic Simulation Software to project queue lengths at the proposed
292 CPF's ECFs based on gate processing times (i.e., the delay in vehicle admittance caused by the security
293 process). Using data from the BEP's Western Currency Facility (WCF; generally 4 to 27 seconds of delay
294 per vehicle), Treasury evaluated queue lengths for multiple potential ECF lane configurations, including
295 two, three, four, and five lanes per ECF.

296 **1.3.2 No Action Alternative**

297 **Summary:** As described in detail below, Treasury would have **no impacts** on traffic and transportation
298 under the No Action Alternative. However, various development projects and background growth of the
299 region would result in long-term impacts on traffic and transportation in the regional and local ROIs, which
300 would vary from **beneficial to significant adverse levels**. Specifically, the No Action Alternative would
301 have **significant adverse impacts** on traffic in the local ROI due to the continued failing LOS of Intersection
302 6, which is also failing under existing conditions, and anticipated failing queue lengths at Intersections 6
303 and 13, which would increase by over 150 feet compared to existing conditions.

304 Under the No Action Alternative, Treasury would not construct the proposed CPF at BARC. Treasury would
305 continue to operate the existing DC Facility as under current conditions. The Project Site would remain in
306 its current condition, and no new vehicle traffic, transit riders, pedestrian and bicycle facilities/users, or
307 parking facilities/users would be generated. Under the No Action Alternative, Treasury would not change
308 the existing regional or local transportation networks and would not generate or eliminate any demands on
309 it; therefore, Treasury would have **no impact** on traffic and transportation.

310 Although Treasury would have no impact on traffic and transportation under the No Action Alternative,
311 various development projects and general background growth of the region, unrelated to the Proposed
312 Action, would affect traffic and transportation conditions. Regional growth would likely result in **less-than-**
313 **significant adverse impacts** on traffic in the regional ROI and on public transit in the local ROI due to
314 increased ridership. Regional growth would have **negligible impacts** on pedestrian and bicycle
315 facilities/use or parking facilities in the local ROI.

316 To establish a comparative baseline against which to evaluate the impacts of the Preferred Alternative,
317 Treasury projected the changes to vehicle traffic in the local ROI in 2029 (i.e., *without* the proposed CPF)
318 as described below.

319 *Level of Service*

320 Treasury projected the LOS for each of the 15 intersections in the local ROI under the No Action Alternative
321 (see **Table 7** and **Figure 4**). Treasury determined that by 2029, 7 of the 15 intersections would have a failing
322 LOS, including one signalized intersection and six unsignalized intersections. Generally, the Pass/Fail
323 ratings of intersections under existing conditions would remain the same under the No Action Alternative.
324 Key take-aways from the comparison between the No Action Alternative (in 2029) and current conditions
325 (2020) include the following:

- 326 • The LOS of Intersection 10 would *degrade* from Pass to Fail due to deterioration of LOS in the PM
327 primary commuting hour; this would likely be a **less-than-significant adverse impact** to traffic in
328 the local ROI since Poultry Road would have minimal traffic.
- 329 • Intersections 8 and 15 would *improve* from Fail to Pass under the No Action Alternative due to LOS
330 improvement during the PM primary commuting hour; these would be **beneficial impacts** to traffic
331 in the local ROI.
- 332 • Intersection 6 would fail under both the No Action Alternative and existing conditions, representing
333 a continued **significant adverse impact** to traffic in the local ROI.
- 334 • All other intersections in the local ROI that have an increase in vehicle control delays under the
335 Preferred Alternative would experience a **less-than-significant adverse impact**.

336 *Queue Lengths*

337 Treasury projected the queue lengths of each approach to each intersection in the local ROI under the No
338 Action Alternative (in 2029); intersection approaches with failing queue lengths under the No Action
339 Alternative are shown in **Table 8**.

340 Treasury determined that 6 of the 15 intersections would experience failing queue lengths in at least one
341 approach; the remainder of the intersections would have acceptable queue lengths in all approaches. Of
342 the six intersections with failing queues, five would fail during the AM primary commuting hour, five would
343 fail during the PM primary commuting hour, and all but two (Intersections 5 and 8) would also have a failing
344 LOS (see **Table 7**).

345 Most approaches with failing queue lengths under current conditions (2020) would continue to fail under
346 the No Action Alternative (in 2029), and Intersections 6 and 8 would have failing queues in additional
347 approaches and during additional primary commuting hours compared to current conditions.

348 All intersections in the local ROI that have an increase in queue lengths, including Intersections 6 and 8,
349 would experience **less-than-significant adverse impacts** under the No Action Alternative. Queue lengths
350 at Intersections 5 and 10 would also *degrade* from Pass to Fail under the No Action Alternative, although
351 the failing queue lengths would be less than 150 feet longer than current conditions, so these impacts would
352 remain **less than significant**.

353 Intersections 6 and 13, which would have overall failing LOSs in 2029, would also have failing queues that
354 would increase by over 150 feet compared to current conditions; this would constitute **significant adverse**
355 **impacts** to traffic in the local ROI.

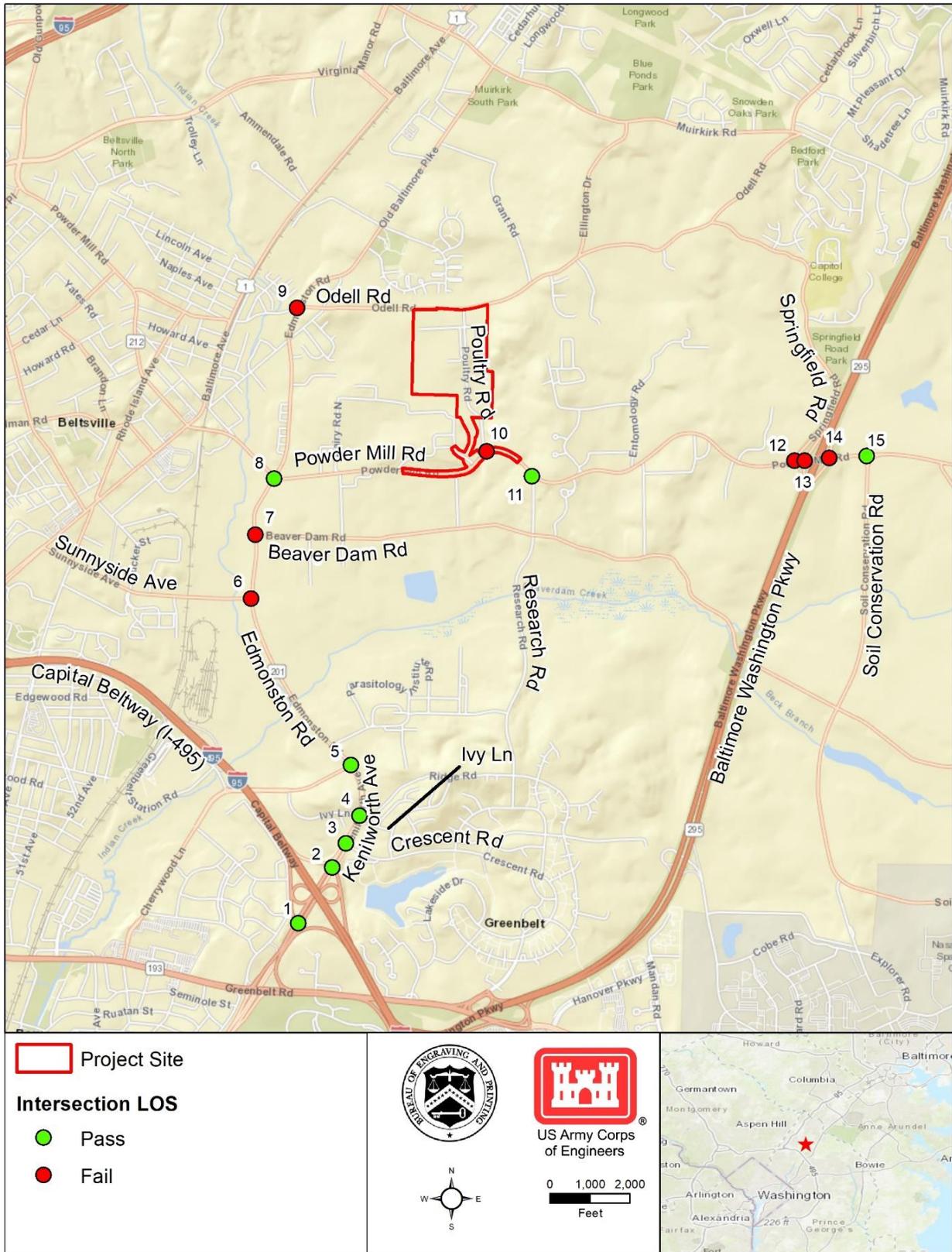
356 Finally, Intersection 15 would improve from Fail to Pass under the No Action Alternative, which would be a
357 **beneficial impact** to traffic in the local ROI.

Table 7: LOS at the 15 Studied Intersections in the Local ROI under the **No Action Alternative**

ID	Intersection Name	Signalized or Unsignalized	AM Primary Commuting Hour				PM Primary Commuting Hour				Pass / Fail	Notable Changes in AM/PM Ratings Compared to Existing Conditions
			HCM		CLV		HCM		CLV			
			LOS	Average Control Delay (seconds / vehicle)	LOS	CLV (# of vehicles)	LOS	Average Control Delay (seconds / vehicle)	LOS	CLV (# of vehicles)		
1	Kenilworth Avenue and Capital Beltway SB Off-Ramp	Signalized	A	5.2	A	606	A	5.5	A	885	Pass	AM/PM Remain Pass
2	Kenilworth Avenue and Capital Beltway NB Off-Ramp	Signalized	C	24.7	A	860	C	21.3	A	969	Pass	AM/PM Remain Pass
3	Kenilworth Avenue and Crescent Road	Signalized	C	26.2	A	666	C	29.6	A	797	Pass	AM/PM Remain Pass
4	Kenilworth Avenue and Ivy Lane	Signalized	A	1.8	A	652	A	2.4	A	906	Pass	AM/PM Remain Pass
5	Kenilworth Avenue/Edmonston Road and Cherrywood Lane	Signalized	B	19.5	A	980	C	21.2	B	1,100	Pass	AM/PM Remain Pass
6	Edmonston Road and Sunnyside Avenue	Signalized	F	141.4	F	1,719	F	106.1	F	1,702	Fail	AM Remains Fail, PM Degrades to Fail Significant Adverse Impact
7	Edmonston Road and Beaver Dam Road	Unsignalized	F	1,753.5	N/A	N/A	F	739.6	N/A	N/A	Fail	AM/PM Remain Fail
8	Edmonston Road and Powder Mill Road	Signalized	D	51.7	B	1,080	D	54.7	C	1,225	Pass	AM Remains Pass, PM Improves to Pass; Overall Rating Improves to Pass Beneficial Impact
9	Edmonston Road and Odell Road	Unsignalized	F	66.3	N/A	N/A	F	63.0	N/A	N/A	Fail	AM/PM Remain Fail
10	Powder Mill Road and Poultry Road	Unsignalized	B	11.3	N/A	N/A	F	59.3	N/A	N/A	Fail	AM Remains Pass, PM Degrades to Fail; Overall Rating Degrades to Fail
11	Powder Mill Road and Research Road	Unsignalized	B	14.6	N/A	N/A	C	24.7	N/A	N/A	Pass	AM/PM Remain Pass
12	Powder Mill Road and Springfield Road	Unsignalized	D	31.1	N/A	N/A	F	229.8	N/A	N/A	Fail	AM Remains Pass, PM Remains Fail
13	Powder Mill Road and Baltimore-Washington Parkway SB Ramps	Unsignalized	F	223.1	N/A	N/A	F	929.9	N/A	N/A	Fail	AM/PM Remain Fail
14	Powder Mill Road and Baltimore-Washington Parkway NB Ramps	Unsignalized	F	67.9	N/A	N/A	F	991.1	N/A	N/A	Fail	AM Degrades to Fail, PM Remains Fail
15	Powder Mill Road and Soil Conservation Road	Signalized	C	24.7	A	639	C	31.2	B	1,001	Pass	AM Remains Pass, PM Improves to Pass; Overall Rating Improves to Pass Beneficial Impact

Source: (BEP, 2020)

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Figure 4: LOS at the 15 Studied Intersections in Local ROI under the **No Action Alternative**

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Table 8: Studied Intersections in Local ROI with Failing Queue Lengths under the No Action Alternative

ID	Intersection Name	Approach with Failing Queue Length	AM / PM	LOS	Increase of 150 feet Compared to Existing Conditions?
5	Kenilworth Avenue / Edmonston Road and Cherrywood Lane	Cherrywood Lane EB	AM	Pass	N/A
6	Edmonston Road and Sunnyside Avenue	Sunnyside Avenue EB	AM	Fail	Y
			PM	Fail	N
		Edmonston Road NB	AM	Fail	Y
			PM	Fail	Y
		Edmonston Road SB	AM	Fail	Y
			PM	Fail	Y
8	Edmonston Road and Powder Mill Road	Powder Mill Road EB	AM	Pass	N/A
			PM	Pass	N/A
		Powder Mill Road WB	AM	Pass	N/A
			PM	Pass	N/A
		Edmonston Road NB	AM	Pass	N/A
			PM	Pass	N/A
10	Powder Mill Road and Poultry Road	Powder Mill Road EB	PM	Fail	N
13	Powder Mill Road and Baltimore-Washington Parkway SB Ramps	Baltimore-Washington Parkway SB Off-Ramp	AM	Fail	N
			PM	Fail	Y
14	Powder Mill Road and Baltimore-Washington Parkway NB Ramps	Baltimore-Washington Parkway NB Off-Ramp	AM	Fail	N
			PM	Fail	N

365 Yellow-shaded approaches would fail under the No Action Alternative but currently pass under existing conditions.
366 Red-shaded cells represent **significant adverse impacts**.

367 **1.3.3 Preferred Alternative**

368 **Summary:** As described in detail below, *construction* of the Preferred Alternative would result in **no impacts**
369 on traffic and transportation in the regional ROI, but **less-than-significant adverse impacts** in the local
370 ROI.

371 *Operation* of the Preferred Alternative would have **negligible adverse impacts** in the regional ROI;
372 *operational* impacts in the local ROI would vary from **beneficial to significant adverse levels**. Specifically,
373 *operation* would have **significant adverse impacts** on traffic in the local ROI (in 2029) due to the continued
374 failing LOS of Intersections 6 and 8, which are also failing under existing conditions; failing LOS of
375 Intersections 10, 12, 13, and 14; and failing queue lengths at Intersection 8, which would increase by over
376 150 feet compared to the No Action Alternative.

377 In comparison, and as described in **Section 1.3.2**, the No Action Alternative (in 2029) would only result in
378 **significant adverse impacts** due to the continued failing LOS at Intersection 6 and increased queue
379 lengths at Intersections 6 and 13.

380 Therefore, the difference is that the Preferred Alternative, as compared to the No Action Alternative, would
381 (in 2029):

- 382 • Continue the failing LOS of Intersection 8.
- 383 • Result in failing LOS at Intersections 10, 12, 13, and 14.
- 384 • Result in failing queue lengths at Intersection 8.

385 1.3.3.1 Construction

386 Vehicles (SOVs and Trucks)

387 Construction traffic, including workers in SOVs, carpools, and trucks, would be expected to travel to and
388 from local locations (see **Section 1.3.1**). Additionally, construction workers would likely be using the same
389 roads within the regional ROI as under the No Action Alternative to complete other construction projects.
390 Therefore, there would be **no impacts** on roadways in the regional ROI under the Preferred Alternative.

391 Construction traffic would occur on the roads in the local ROI during daytime working hours, Monday
392 through Friday, for the duration of construction. Construction traffic from commuting workers would vary
393 depending on the construction phase, but would be a minor increase on local roadways compared to
394 existing daily traffic conditions (see **Table 3**).

395 Treasury assumes there would be 7,278 dump truck trips over the entirety of the construction period.
396 Although these trips would be distributed throughout the construction phase, they would primarily occur
397 during the first two years of construction, when the dump trucks would be disposing of demolition materials
398 and delivering construction materials. Dump truck traffic would be spread across the entire workday, thereby
399 minimizing impacts on local peak hours and traffic conditions. Dump trucks would also travel on restricted
400 routes to minimize impacts on local residences. For example, they would exit and enter the Project Site
401 from Poultry Road via Powder Mill Road, and would be restricted from using Odell Road.

402 While construction traffic would likely contribute slightly to traffic volume and congestion on local roadways,
403 it would be temporary, minor compared to existing daily traffic, and would not lead to a lasting or permanent
404 degradation of traffic operations. Therefore, with impact-reduction measures implemented (see **Section**
405 **1.4**), there would be a **less-than-significant adverse impact** on traffic in the local ROI from construction
406 traffic.

407 Construction of the Powder Mill Road modifications included in the Proposed Action, including a new traffic
408 control device (e.g., stoplight), lane widening, removal of existing rumble strips, etc., would require
409 temporary closure of all or part of Powder Mill Road within the Project Site. Treasury would maintain one-
410 way, alternating traffic on Powder Mill Road (i.e., by working on one side of the road while the other side is
411 open to one-way traffic) to the extent practicable. In the event through-traffic must be halted on Powder Mill
412 Road at any point during construction, Treasury would establish adequate and well-marked detours to fully
413 accommodate local traffic. Treasury would plan all roadwork in close consultation with local planning
414 authorities. Impacts to local traffic from temporary Powder Mill Road closures would remain at **less-than-**
415 **significant adverse levels**.

416 *Parking*

417 Treasury would create an adequate, temporary parking area on the Project Site for construction worker
418 vehicles and trucks. Parking of large construction equipment would occur in designated, temporary staging
419 areas within the Project Site. No workers, trucks, or equipment would be parked off-site or on local streets
420 during construction of the proposed CPF. Therefore, there would be **no impacts** to parking in the regional
421 or local ROIs during construction.

422 **Pedestrian and Bicycle Network**

423 The Project Site would be inaccessible to public pedestrians during construction. Since the pedestrian
424 network in the ROI is generally lacking or absent, however, there would be **no impacts** from the Preferred
425 Action.

426 During construction, there would be closures of the 3-foot to 6-foot striped shoulder on Powder Mill Road
427 between Edmonston Road and the Baltimore-Washington Parkway that provides space for bicyclists. These
428 closures would be temporary, only occurring while the proposed Powder Mill Road modifications are
429 constructed. The shoulder would be restored to its existing or similar condition after these construction
430 activities are complete. This would be a **less-than-significant adverse impact** to the bicycle network in
431 the local ROI. No other bicycle network components would be affected during construction of the proposed
432 CPF.

433 **Public Transit**

434 Some construction workers could choose to commute to work using public transit. If construction workers
435 take public transit, this would generate new transit trips from the Greenbelt Metrorail Station and the
436 Metrobus 87 route along Powder Mill Road. However, construction workers are not anticipated to take public
437 transit in perceptible numbers, their use of public transit would be temporary (i.e., only during construction),
438 and volumes of construction workers that might use public transit would vary during each phase of
439 construction. If construction workers indicate that public transit would be their primary commuting mode,
440 Treasury would pursue a temporary agreement with USDA for construction workers to use the Greenbelt
441 Station shuttle. Overall, construction workers' use of public transit during construction would cause
442 **negligible adverse impacts** to public transit from increased ridership.

443 **1.3.3.2 Operation**

444 **Vehicles (SOVs and Trucks)**

445 SOV (i.e., from commuters) and truck traffic would increase under the Preferred Alternative. Most of the
446 proposed CPF employees would commute to the facility via major regional roadways (e.g., the Capital
447 Beltway and the Baltimore-Washington Parkway) that are already heavily trafficked commuter routes; the
448 increase in traffic on these routes during operation of the Preferred Alternative (i.e., from both commuters
449 and trucks) would not be perceptible. Further, commuters to the DC Facility already use these same roads
450 under existing conditions and would just travel to a different site under the Preferred Alternative.

451 There could be a slight increase, however, in the number of employees commuting with SOVs under the
452 Preferred Alternative due to the decreased accessibility of the proposed CPF via public transit compared
453 to the DC Facility. Conversely, there could be a slight decrease in truck trips in the regional ROI as trips to
454 and from the Landover facility would be eliminated. Overall, the Preferred Alternative could have a
455 **negligible adverse impact** on roadways in the regional ROI due to a marginal, but imperceptible, increase
456 in traffic from commuters and trucks.

457 Increased traffic in the local ROI is primarily captured in the results of the LOS and queue length analyses
458 of the primary commuting hours, discussed below. There would also be, however, approximately 130 to
459 135 additional trips from CPF employees during the local ROI's AM and PM peak hours, resulting in a **less-
460 than-significant adverse impact** to local traffic from a minor increase in traffic during the most congested
461 periods of the day.

462 Treasury anticipates approximately 82 trucks would arrive at and depart from the proposed CPF weekly.
463 This increase in truck traffic would be imperceptible in the regional ROI, resulting in **no impacts**. Trucks
464 would be expected to follow existing truck restrictions on regional and local roadways, such as the restriction
465 of commercial trucks on portions of the Baltimore-Washington Parkway.

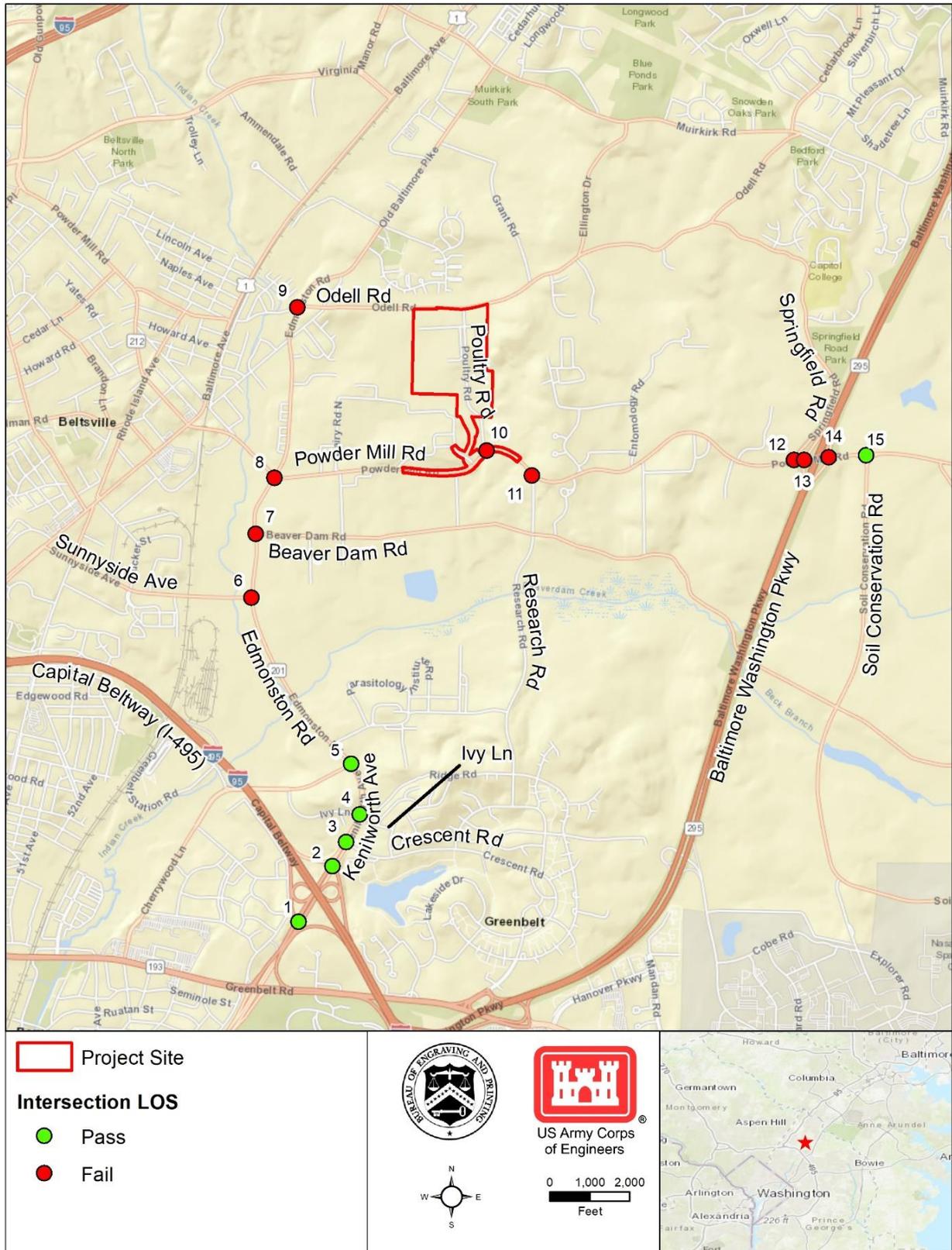
466 Increased truck traffic in the local ROI would be perceptible but minor, particularly along Powder Mill Road
467 as trucks approach and depart from the proposed CPF. To limit the impact of truck traffic on roads in the
468 local ROI (and prevent their travel on the Baltimore-Washington Parkway), Treasury would route trucks
469 along Powder Mill Road, Edmonston Road/Kenilworth Avenue, and the Capital Beltway to the extent
470 possible. Further, while some of the trucks could serve the proposed CPF during the evening and midnight
471 shifts for logistical reasons, most would arrive and depart during the day shift. Treasury would schedule
472 trucks to arrive at and depart from the Project Site outside of the typical peak hours in the local ROI to the
473 extent possible. With the implementation of these impact-reduction measures (see **Section 1.4**), truck traffic
474 would have a **less-than-significant adverse impact** on local roadways.

475 *Level of Service*

476 With the addition of anticipated traffic from the Preferred Alternative to 2029 baseline conditions (i.e., the
477 No Action Alternative), 9 of 15 intersections would have a failing LOS during the AM and/or PM primary
478 commuting hours (see **Figure 5** and **Table 9**), including two signalized intersections and seven unsignalized
479 intersections. The Pass/Fail ratings of intersections under the No Action Alternative would generally remain
480 the same under the Preferred Alternative, with two exceptions. Key take-aways from the comparison
481 between the Preferred Alternative and No Action Alternative include the following:

- 482 • Intersection 8 (signalized) would *degrade* from Pass to Fail due to deterioration of LOS in the PM
483 primary commuting hour. This would be a **significant adverse impact**. Intersection 8, however, is
484 currently failing under existing (current) conditions, so the marginal impact of the proposed CPF
485 would be that it does not improve to Pass under the No Action Alternative.
- 486 • Intersection 11 (unsignalized) would also *degrade* from Pass to Fail due to deterioration of LOS in
487 the PM primary commuting hour. The minor approach, however, has fewer than 100 vehicles per
488 hour, so this would be a **less-than-significant adverse impact**.
- 489 • LOS at Intersections 6, 7, 9, 10, 12, 13, and 14 would fail under the No Action Alternative and would
490 *worsen* under the Preferred Alternative.
 - 491 • Intersection 6 (signalized) is also failing under existing conditions, so this **significant adverse**
492 **impact** would be a *continuation and worsening* of current conditions.
 - 493 • Of the remaining intersections, four of them (i.e., Intersections 10, 12, 13, and 14) have minor
494 approaches with more than 100 vehicles per hour and would have CLVs greater than 1,150;
495 therefore, these impacts would also be **significant and adverse**. Two intersections (i.e.,
496 Intersections 7 and 9) have minor approaches with less than 100 vehicles per hour, so these
497 impacts would be **less than significant** and **adverse**.
- 498 • All other intersections in the local ROI that have an increase in vehicle control delays under the
499 Preferred Alternative would experience a **less-than-significant adverse impact**.
- 500 • No intersections would improve from Fail to Pass under the Preferred Alternative.

501 Treasury would consider the mitigation measures outlined in **Section 1.4** to reduce significant adverse
502 impacts to less-than-significant levels.



503

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Figure 5: LOS at the 15 Studied Intersections in Local ROI under the **Preferred Alternative**

Table 9: LOS at the 15 Studied Intersections in the Local ROI under the Preferred Alternative

ID	Intersection Name	Signalized or Unsignalized	AM Primary Commuting Hour				PM Primary Commuting Hour				Pass / Fail	Notable Changes in AM/PM Ratings Compared to No Action Alternative	Mitigation		
			HCM		CLV		HCM		CLV				Unsignalized Intersections		Mitigation Required?
			LOS	Average Control Delay (seconds / vehicle)	LOS	CLV (# of vehicles)	LOS	Average Control Delay (seconds / vehicle)	LOS	CLV (# of vehicles)			Minor Approach Has >100 Vehicles/Hour?	CLV > 1,150?	
1	Kenilworth Avenue and Capital Beltway SB Off-Ramp	Signalized	A	7.9	A	667	A	5.5	A	894	Pass	AM/PM Remain Pass	N/A	N/A	No
2	Kenilworth Avenue and Capital Beltway NB Off-Ramp	Signalized	C	32.2	A	973	C	21.7	B	1,051	Pass	AM/PM Remain Pass	N/A	N/A	No
3	Kenilworth Avenue and Crescent Road	Signalized	C	26.6	A	785	C	31.6	A	917	Pass	AM/PM Remain Pass	N/A	N/A	No
4	Kenilworth Avenue and Ivy Lane	Signalized	A	1.6	A	652	A	3.2	B	1,084	Pass	AM/PM Remain Pass	N/A	N/A	No
5	Kenilworth Avenue/Edmonston Road and Cherrywood Lane	Signalized	B	19.2	A	980	C	25.3	C	1,278	Pass	AM/PM Remain Pass	N/A	N/A	No
6	Edmonston Road and Sunnyside Avenue	Signalized	F	150.0	F	1,779	F	164.0	F	2,025	Fail	AM/PM Remain Fail	N/A	N/A	Yes
7	Edmonston Road and Beaver Dam Road	Unsignalized	F	Error	N/A	N/A	F	Error	N/A	N/A	Fail	AM/PM Remain Fail	No	N/A	No
8	Edmonston Road and Powder Mill Road	Signalized	D	54.5	B	1,117	F	164.5	F	1,608	Fail	AM Remains Pass PM Degrades to Fail	N/A	N/A	Yes
9	Edmonston Road and Odell Road	Unsignalized	F	73.1	N/A	N/A	F	67.9	N/A	N/A	Fail	AM/PM Remain Fail	No	N/A	No
10	Powder Mill Road and Poultry Road ¹	Unsignalized	F	76.1	N/A	N/A	F	354.3	N/A	N/A	Fail	AM Degrades to Fail PM Remains Fail	Yes	Yes	Yes
11	Powder Mill Road and Research Road	Unsignalized	D	25.1	N/A	N/A	E	48.2	N/A	N/A	Fail	AM Remains Pass PM Degrades to Fail	No	N/A	No
12	Powder Mill Road and Springfield Road	Unsignalized	F	184.4	N/A	N/A	F	693.7	N/A	N/A	Fail	AM Degrades to Fail PM Remains Fail	Yes	Yes	Yes

ID	Intersection Name	Signalized or Unsignalized	AM Primary Commuting Hour				PM Primary Commuting Hour				Pass / Fail	Notable Changes in AM/PM Ratings Compared to No Action Alternative	Mitigation		
			HCM		CLV		HCM		CLV				Unsignalized Intersections		Mitigation Required?
			LOS	Average Control Delay (seconds / vehicle)	LOS	CLV (# of vehicles)	LOS	Average Control Delay (seconds / vehicle)	LOS	CLV (# of vehicles)			Minor Approach Has >100 Vehicles/Hour?	CLV > 1,150?	
13	Powder Mill Road and Baltimore-Washington Parkway SB Ramps	Unsignalized	F	668.5	N/A	N/A	F	1,718.4	N/A	N/A	Fail	AM/PM Remain Fail	Yes	Yes	Yes
14	Powder Mill Road and Baltimore-Washington Parkway NB Ramps	Unsignalized	F	1,020.3	N/A	N/A	F	1,860.5	N/A	N/A	Fail	AM/PM Remain Fail	Yes	Yes	Yes
15	Powder Mill Road and Soil Conservation Road	Signalized	C	25.1	A	681	C	33.1	B	1,044	Pass	AM/PM Remain Pass	N/A	N/A	No

506 1. Treasury modeled Intersection 10 as though Poultry Road would be used as the entrance road to the CPF, before establishing the need for a new proposed entrance road. As such, the adverse values presented here for Intersection 10 are artificially elevated; however,
 507 Intersection 10 would also be considered failing under the No Action Alternative without proposed Treasury-related traffic.
 508 Source: (BEP, 2020)

509 *Queue Lengths*

510 Treasury determined that 9 of the 15 intersections would experience failing queue lengths in at least one
 511 approach under the Preferred Alternative (see **Table 10**); the remainder of the intersections would have
 512 acceptable queue lengths in all approaches.

513 Of the nine intersections with failing queues, all would have failing approaches during the AM primary
 514 commuting hour and five would have failing approaches during the PM primary commuting hour.
 515 Additionally, five intersections with failing queues would also have a failing LOS, while four would have a
 516 passing LOS.

517 All approaches with failing queue lengths under the No Action Alternative would continue to fail under the
 518 Preferred Alternative; Intersections 5, 8, and 10 would have failing queues in additional approaches and/or
 519 during additional primary commuting hours. All intersections in the local ROI that have an increase in queue
 520 lengths, including Intersections 5, 8, and 10, would experience **less-than-significant adverse impacts** as
 521 a result of the Preferred Alternative.

522 Intersection 8, which has an overall failing LOS, would have an increase in queue length of more than 150
 523 feet compared to the No Action Alternative; this would be a **significant adverse impact** to traffic in the
 524 local ROI. Treasury would consider the mitigation measures outlined in **Section 1.4** to reduce this impact
 525 to less-than-significant levels.

526 No intersections or approaches failing under the No Action Alternative would improve to passing under the
 527 Preferred Alternative.

528 Based on the TransModeler™ results for average queue lengths at the proposed CPF's ECFs, average
 529 queue lengths would be less than the length of the proposed entrance road (i.e., 1,800 feet). The maximum
 530 queue length (i.e., 1 percent chance of occurring or less), however, may exceed the CPF's proposed
 531 entrance road if there are fewer than four lanes operating at the ECF.

532 Therefore, there would be **no impacts** on the proposed entrance road from spillover of vehicles from the
 533 driveway onto Powder Mill Road if Treasury would maintain four or five operational ECF lanes. There could
 534 be **less-than-significant adverse impacts** on the proposed entrance road if the ECF must operate with
 535 three or fewer lanes (e.g., if four lanes are constructed but one or more lanes is temporarily non-functional
 536 for any reason).

537 **Table 10: Studied Intersections in Local ROI with Failing Queue Lengths under the Preferred**
 538 **Alternative**

ID	Intersection Name	Approach with Failing Queue Length	AM/PM	LOS	Increase of 150 feet Compared to No Action Alternative?	Mitigation Required?
2	Kenilworth Avenue and Capital Beltway NB Off-Ramp	I-95 NB Off-Ramp	AM	Pass	N/A	No
3	Kenilworth Avenue and Crescent Road	MD 201 NB	AM	Pass	N/A	No
4	Kenilworth Avenue and Ivy Lane	MD 201 NB	AM	Pass	N/A	No

ID	Intersection Name	Approach with Failing Queue Length	AM/PM	LOS	Increase of 150 feet Compared to No Action Alternative?	Mitigation Required?
5	Kenilworth Avenue / Edmonston Road and Cherrywood Lane	Cherrywood Lane EB	AM	Pass	N/A	No
		MD 201 NB	AM	Pass	N/A	
6	Edmonston Road and Sunnyside Avenue	Sunnyside Avenue EB	AM	Fail	No	No
			PM	Fail	No	
		Edmonston Road NB	AM	Fail	No	No
			PM	Fail	No	
		Edmonston Road SB	AM	Fail	No	No
			PM	Fail	No	
8	Edmonston Road and Powder Mill Road	Powder Mill Road EB	AM	Pass	N/A	Yes
			PM	Fail	Yes	
		Powder Mill Road WB	AM	Pass	N/A	No
			PM	Fail	No	
		Edmonston Road NB	PM	Fail	No	No
		Edmonston Road SB	AM	Pass	N/A	No
PM	Fail		No			
10	Powder Mill Road and Poultry Road ¹	Powder Mill Road EB	AM	Fail	Yes	N/A
			PM	Fail	Yes	
		Powder Mill Road WB	AM	Fail	Yes	N/A
13	Powder Mill Road and Baltimore-Washington Parkway SB Ramps	Baltimore-Washington Parkway SB Off-Ramp	AM	Fail	No	No
			PM	Fail	No	
14	Powder Mill Road and Baltimore-Washington Parkway NB Ramps	Baltimore-Washington Parkway NB Off-Ramp	AM	Fail	No	No
			PM	Fail	No	

539 1. Treasury modeled Intersection 10 as though Poultry Road would be used as the entrance road to the CPF, before
 540 establishing the need for a new proposed entrance road. As such, the adverse values presented here for Intersection
 541 10 are artificially elevated and unreliable indicators of queue performance under the Preferred Alternative.

542 Yellow-shaded approaches would fail under the Preferred Alternative but currently pass under the No Action Alternative.

543 Red-shaded cells represent **significant adverse impacts**.

544 *Parking*

545 In accordance with NCPC parking policy (NCPC, 2016), and as described in **Section 1.3.1**, the proposed
 546 CPF would have a surface parking lot with 1,179 parking spaces, which would be sufficient to accommodate
 547 both employees and visitors at any given time. This parking lot would be contained within the Project Site,
 548 beyond a security checkpoint, and would therefore not be accessible to the non-visitor public. There would
 549 be no changes to parking off-site, and thus **no impacts** to parking in the local ROI.

550 **Pedestrian and Bicycle Network**

551 No improvements to the pedestrian network outside of the Project Site would occur under the Preferred
552 Alternative. No CPF employees would be anticipated to walk to work from their home. Employees would
553 need to walk, however, along Powder Mill Road to and from the Metrobus 87 (Laurel Express) bus stops.
554 To better facilitate pedestrian travel, Treasury could consider pursuing pedestrian improvements, traffic-
555 calming devices (e.g., speed bumps), or slower speed limits along Powder Mill Road, and/or consult with
556 WMATA regarding the locations of bus stops along this road, during the design process.

557 No additional improvements or changes to the bicycle network outside the Project Site would occur under
558 the Preferred Alternative. Treasury anticipates that 1 percent, or 11 employees, would bike to the proposed
559 CPF.

560 Overall, there would be **minor adverse impacts** to the pedestrian and bicycle network in the local ROI
561 under the Preferred Alternative. While no designated bicycle lanes currently exist along Powder Mill Road
562 or are proposed under the Preferred Alternative, this road is commonly used by bicyclists. Additional vehicle
563 traffic from operation of the proposed CPF could make the road less appealing for biking. Further, new use
564 of this road by pedestrian/bicycling commuters would be nominal compared to the total number of CPF
565 employees. Treasury could incorporate pedestrian/bicycle amenities into the Preferred Alternative during
566 the design process, which could lead to beneficial impacts to these networks.

567 **Public Transit**

568 Treasury anticipates only 9 percent (approximately 100) of proposed CPF employees would take public
569 transit to work, as very few Metrorail trains arrive at the Greenbelt Metrorail Station in time for employees
570 to travel to the proposed CPF prior to the start of their day shift. This would generate minimal new transit
571 trips impacting primarily the Greenbelt Metrorail Station and the Metrobus 87 route along Powder Mill Road.
572 BARC's Greenbelt Station shuttle would need to expand its service to serve the proposed CPF.

573 Increased Metrorail ridership under the Preferred Alternative would be minor due to the variety of origin
574 locations, the off-peak commute times of most day-shift CPF employees, and the overall low number of
575 new trips generated (i.e., approximately 100). These would be split between Metrorail and Metrobus. Any
576 increase in Metrobus 87 transit ridership would be very minor as this bus route would only be a feasible
577 mode of transportation for employees who live along the route. Overall, both Metrorail and Metrobus transit
578 would be able to accommodate the minimal increased passenger load from the proposed CPF. Therefore,
579 there would be **negligible adverse impacts** to public transit under the Preferred Alternative from slightly
580 increased ridership.

581 **1.4 Impact-Reduction Measures**

582 As part of the Proposed Action, Treasury would implement the following impact-reduction measures to
583 minimize potential adverse impacts to traffic and transportation:

584 *Construction*

- 585 • Establish construction activity hours such that construction workers and trucks would not travel
586 during the peak hours of the local ROI (i.e., 7:45 to 8:45 a.m. and 5:00 to 6:00 p.m.).
- 587 • Implement an agreement with the USDA to enable construction workers to use the USDA shuttle
588 from the Greenbelt Metrorail Station to the Project Site, potentially including expanded shuttle
589 service.
- 590 • Restrict trucks from traveling on roads proximal to residences (e.g., Odell Road) to the extent
591 possible; construction access to the Project Site should be limited to Poultry Road to the south of
592 the Project Site.

- 593 • Consult with local planning authorities regarding all proposed construction activities within the
594 Powder Mill Road right-of-way.

595 *Operation*

- 596 • Require trucks to follow existing truck restrictions on regional and local roadways, such as the
597 restriction of commercial trucks on portions of the Baltimore-Washington Parkway. Truck traffic
598 should be routed along Powder Mill Road, Edmonston Road/Kenilworth Avenue, and the Capital
599 Beltway to minimize its use of collector and local roads.
- 600 • Schedule truck arrivals and departures during daytime hours, but outside of the typical peak hours
601 (i.e., 7:45 to 8:45 a.m. and 5:00 to 6:00 p.m.) in the local ROI, to the extent possible.
- 602 • Restrict trucks from traveling on roads proximal to residences (e.g., Odell Road) to the extent
603 possible; operational access to the Project Site would be limited to Powder Mill Road, south of the
604 Project Site. Odell Road would only be used as an emergency exit from the proposed CPF.
- 605 • Implement an agreement with the USDA to enable CPF employees to use the USDA shuttle from
606 the Greenbelt Metrorail Station to the Project Site, potentially including expanded shuttle service.

607 **1.5 Mitigation Measures**

608 Treasury should design and implement mitigation measures for those intersections anticipated to
609 experience **significant adverse impacts** under the Preferred Alternative: Intersections 6, 8, 10, 12, 13,
610 and 14. Intersection mitigation typically includes design measures such as:

- 611 • Adjusting signal control types, timings, and phasings.
- 612 • Signalizing or installing roundabouts to unsignalized intersections.
- 613 • Changing existing lane geometry within the existing right-of-way.
- 614 • Adding new turn lanes or through lanes, or extending existing turning lane storage bays by
615 assuming additional right-of-way.

616 Treasury, through close coordination with local planning authorities, identified and designed potential
617 mitigation measures in the [Transportation Impact Study](#) for each significantly and adversely affected
618 intersection, correspondent with the above mitigation recommendations. Additionally, Treasury anticipates
619 that the Powder Mill Road modifications included in the Proposed Action would be designed in a manner
620 that facilitates proper functioning of all intersections/driveways within the Project Site (e.g., including
621 Intersection 10).

622 Treasury should continue to consult with local planning authorities throughout the design process to refine
623 these intersection-specific improvement measures. Effective mitigation designs would reduce adverse
624 impacts to **less-than-significant levels** for all affected intersections.

625 In addition to mitigating significant adverse impacts to intersections, Treasury should consider the following
626 measures to further reduce identified **less-than-significant adverse impacts**:

- 627 • In consultation with local planning authorities, implement traffic-calming devices (e.g., speed
628 bumps), reduce speed limits, and/or create pedestrian/bicycle lanes along roadways in the local
629 ROI, such as Powder Mill Road. Rumble strips should be avoided, if feasible, as the existing rumble
630 strips on Powder Mill Road have generated noise complaints from both the surrounding community
631 and BARC employees.
- 632 • Incorporate pedestrian/bicycle amenities into the Preferred Alternative during the design process.

- 633 • Consult with WMATA regarding the opportunity to adjust Metrobus routes such that they serve the
634 proposed CPF more effectively (e.g., instating a bus stop along the proposed CPF's driveway),
635 thereby reducing traffic in the local ROI by making public transit more accessible and functional for
636 employees, and improving pedestrian safety by reducing the need for employees to walk along
637 Powder Mill Road to access a bus stop.

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